

Application No.: 10/553,958
Attorney Docket No.: 053230
Response under 37 CFR §1.111

REMARKS

Claims 3, 6, 7 and 8 are pending in the present application. Claims 3 and 8 are herein amended. Claims 1, 4, 5, 9 and 11 to 19 are herein cancelled. Claims 2 and 10 were previously cancelled. Claim 3 incorporates within it all of the limitations of cancelled claims 4, 5 and 9. No new matter has been entered.

Claim Rejections - 35 U.S.C. §112

The Examiner has rejected claim 8 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner contends that “[c]laim 3 requires that it is the iodine-dyed film that is stretched while claim 8 recites that the iodine dyeing step is performed together with the stretching step. It would appear that the stretching step of claim 3 is not the same one as set forth in claim 8 and these should be differentiated. If they are indeed the same stretching step, then claim 8 fails to further limit claim 3, which recites that the already dyed film is stretched, not that the stretching and dyeing occur simultaneously. Clarification is required as to exactly what "the stretching step" at line 2 of claim 8 refers to.”

Claim 8 has been amended to recite “a stretching pre-step” in place of “the stretching step” to clarify that “a stretching pre-step” refers to a preliminary stretching that takes place in the iodine bath and before the stretching step in the boric acid bath. Support for this amendment may be found in the paragraph beginning on page 8, line 27 of the present specification. Also,

Application No.: 10/553,958
Attorney Docket No.: 053230
Response under 37 CFR §1.111

the paragraph beginning on page 8, line 27 has been amended to provide clarification for the above amendment.

Because the scope of claim 8, as amended, can be ascertained with reasonable certainty when read in light of the specification, applicants submit that claim 8 particularly point out and distinctly claim the invention. Accordingly, Applicants request that the rejection under 35 U.S.C. 112, 2nd paragraph, be withdrawn.

Claim Rejections - 35 U.S.C. §102

The Examiner has rejected claims 3-9 under 35 U.S.C. §102(e) as being anticipated by Sugino et al 2003/0137732 (see paragraphs 0018, 0044, 0047, 0052-0055 and 0057). Applicants respectfully traverse the rejection.

Independent claim 3

Claim 3, as amended, calls for ... *uniaxially stretching the iodine-dyed polyvinyl alcohol-based film in an aqueous boric acid solution containing an iodide at a concentration of 4 to 12% by weight; and subsequently washing the film with an aqueous solution containing an iodide at a concentration of 0.8 to 2.5% by weight;*

In paragraph [0050], Sugino discloses the following:

“[t]hough the solution for the stretching bath is not limited specifically, it is selected, for example, from solutions containing boric acid, potassium iodide, various metal salts and other iodides, and zinc compounds. The solvent can be, water, ethanol, or the like. Specifically, it

Application No.: 10/553,958
Attorney Docket No.: 053230
Response under 37 CFR §1.111

is preferable that the solution contains boric acid and **potassium iodide**.

Preferably, a total content of these materials ranges from about 2 wt % to about 18 wt %, more preferably from about 4 wt % to about 17 wt %, and particularly preferably from about 6 wt % to about 15 wt %.

The ratio (weight ratio) of the boric acid to potassium iodide ranges, for example, from about 1:0.1 to about 1:4, more preferably from about 1:0.2 to about 1:3.5, and particularly preferably from about 1:0.5 to about 1:3.”

Further, in the Examples of Sugino, the boric acid bath does not contain any iodide (see Sugino at paragraph [0133]).

Applicants hereby assert that the extremely broad indications in paragraph [0050] of Sugino, whereas the single embodiment of Sugino does not use potassium iodide, do not anticipate the limitation “an aqueous boric acid solution containing **an iodide at a concentration of 4% to 12% by weight**” as recited in present claim 3 (see MPEP 2131.03).

In addition, Sugino does not teach or suggest the claimed invention because the ranges as recited in the presently claimed invention provide unexpectedly improved optical properties, as compared to the process of Sugino. Thus, the comparative examples in the present specification show that, when potassium iodide concentration was insufficient in the stretching and/or washing bath, optical properties were significantly inferior. In particular, Comparative Examples 1 and 4 show that, when potassium iodide concentration was 3% by weight in the stretching bath, optical properties were inferior, as reported in Table 1 on page 41 of the present specification.

Application No.: 10/553,958
Attorney Docket No.: 053230
Response under 37 CFR §1.111

Based on the results of comparative examples, the Applicants assert that the range of the manufacturing conditions of the present specification provides an unexpected improvement, as compared to the process of Sugino.

Because Sugino fails to teach or suggest the features of present claim 3 and its advantages, Applicants submits that claim 3 and the claims dependent thereon are not anticipated by, and not obvious over, Sugino. Accordingly, Applicants request that the rejection should be withdrawn.

Claim Rejections - 35 U.S.C. §103

The Examiner has rejected claim 9 under 35 U.S.C. §103(a) as being unpatentable over Sugino et al (see paragraph 0018). Claim 9 has been cancelled. In view of the cancellation of claim 9, it is believed that this rejection in view of the prior art is now moot.

Requirement for Information

On page 4, item 4, the Examiner states the following: “[i]t is noted that the search report considers Japanese document 2002-258,042 to be particularly relevant with respect to the method—the report suggests that the method is taught in paragraphs [0024]-[0029]. Applicant is requested to provide a translation of these paragraphs or an English equivalent if such is readily available.”

As per the Examiner’s request, an English translation of paragraphs [0024]-[0029] is submitted with this paper.

Application No.: 10/553,958
Attorney Docket No.: 053230
Response under 37 CFR §1.111

Further, Applicants note that the description of JP-A-2002-258042 at paragraphs [0024]-[0029] is analogous to description in Sugino. Therefore, Applicants submit that, like Sugino, the above disclosure also fails to anticipate claim 3 and dependent claims thereof.

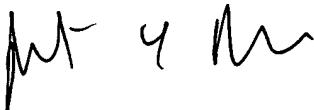
In view of the aforementioned amendments and accompanying remarks, Applicants submit that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP



Robert Y. Raheja
Attorney for Applicants
Registration No. 59,274
Telephone: (202) 822-1100
Facsimile: (202) 822-1111

NES/RYR/adp

[0024]

First, the I⁻ ion content in a polarizer is adjusted by a method such as immersion into an aqueous solution containing I⁻ ions. In a dyeing treatment, a polyvinyl alcohol film is immersed in a dyeing bath at 20 to 70°C to which a dichroic substance such as iodine, a dichroic dye or the like is added, for 1 to 20 minutes, to allow iodine or the dichroic dye to adsorb thereto. The concentration of iodine or a dichroic dye in the dyeing bath is generally 0.1 to 1.0 parts by mass per 100 parts by mass of water. Among others, those which have been subjected to a dyeing treatment with iodine are preferable, since they have high transmittance and high degree of polarization, thus high dichroism. Into the dyeing bath, 2 to 20 parts by mass of an auxiliary agent such as an iodide such as potassium iodide, lithium iodide, sodium iodide, zinc iodide, aluminum iodide, lead iodide, copper iodide, barium iodide, calcium iodide, tin iodide, or titanium iodide may be added, and it is especially preferable in view of increasing dyeing efficiency. In addition, a stretching treatment can be carried out in parallel with the dyeing treatment. In addition to a water solvent, an organic solvent which is compatible with water may be included in a small amount. Furthermore, the polyvinyl alcohol film may be subjected to swelling treatment in a water bath or the like at 20 to 60°C for 0.1 to 10 minutes before dyeing in an aqueous solution containing iodine or a dichroic dye.

[0025]

For stretching in an aqueous solution containing iodine or a dichroic dye (a dyeing bath), for example, a polyvinyl alcohol film may be stretched three- to sevenfold with immersing the film in an aqueous solution containing iodine or a dichroic dye. Alternatively, stretching may be carried out by a method wherein a polyvinyl alcohol film is stretched with applying or spraying an aqueous solution containing iodine or a dichroic dye onto the film. The stretching method is not specifically limited, and stretching may be accomplished by, for example, a method wherein tension applied to the film is appropriately adjusted.

[0026]

Next, it is preferable to stretch the polyvinyl alcohol film which has been subjected to the stretching treatment at a total stretching ratio of three to seven in an aqueous solution containing a boron compound. When the stretching ratio is less than three, it would be impossible to obtain a polarizing plate having a high degree of polarization, and a wrinkle would be likely to appear due to swelling of the film. In addition, when the ratio exceeds seven, a crack in stretching would be likely to be generated, and it would be difficult to stably obtain a film having a high degree of polarization.

[0027]

The composition of the above-mentioned aqueous solution containing a boron compound for carrying out a cross-linking treatment is generally 1 to 10 parts by mass of a PVA cross-linking agent such as boric acid, borax, glyoxal, or glutaraldehyde, alone or in a combination, per 100 parts by mass of water. Into a cross-linking bath, an auxiliary agent such as an iodide such as potassium iodide, lithium iodide, sodium iodide, zinc iodide, aluminum iodide, lead iodide, copper iodide, barium iodide, calcium iodide, tin iodide, or titanium iodide may be added in an amount of 0.05 to 15% by mass, preferably 0.5 to 8% by mass, and it is especially preferable in view of obtaining features which are uniform in a surface. The temperature of the aqueous solution is generally in a range of 20 to 70°C. Immersion time is not specifically limited, but generally 1 second to 15 minutes, and preferably 5 seconds to 10 minutes. In addition to a water solvent, an organic solvent which is compatible with water may be included in a small amount.

[0028]

For stretching in an aqueous solution containing a boron compound, for example, a stretched polyvinyl alcohol film is stretched with immersing the film in an aqueous solution containing a boron compound. In addition, stretching may be carried out by a method wherein a relaxed polyvinyl alcohol film is stretched with applying or spraying an aqueous solution containing a boron compound onto the film. The stretching method is not specifically limited, and stretching may be accomplished by, for example, a method wherein tension applied to the film is appropriately adjusted, a method wherein stretching is carried out with fixing the ratio, a method wherein both are carried out in multiple stages. Here, the tension is adjusted depending on the kind of a boron compound, the temperature or concentration of the aqueous solution containing the

boron compound, the average degree of polymerization or the kind of the polyvinyl alcohol film, or the like.

[0029]

A polyvinyl alcohol film subjected to the above-mentioned adsorption-orientation treatment is further immersed in an aqueous iodide solution such as potassium iodide of which water temperature is 10 to 60°C and concentration is 0.1 to 10% by mass for 1 second to 1 minute, before washing the film with water and drying at 20 to 80°C for 1 minute to 10 minutes, to obtain a polarizer.